**148 (New).** A method of inducing antibodies against an antigen in an individual comprising the steps of:

injecting into tissue of said individual at a site on said individual's body, a DNA molecule and a polynucleotide function enhancer,

said DNA molecule comprising a DNA sequence that encodes an antigen, said DNA sequence operatively linked to regulatory sequences which control the expression of said DNA sequence,

said polynucleotide function enhancer is a compound having one of the following formulae:

$$Ar - R^1 - O - R^2 - R^3$$

or

$$Ar - N - R^1 - R^2 - R^3$$

or

$$R^4 - N - R^5 - R^6$$

or

$$R^4 - O - R^1 - - R^7$$

wherein:

Ar is benzene, *p*-aminobenzene, *m*-aminobenzene, *o*-aminobenzene, substituted benzene, substituted *p*-aminobenzene, substituted *m*-aminobenzene, substituted *o*-aminobenzene, wherein the amino group in the aminobenzene compounds can be amino, $C_1$-$C_5$ alkylamine, $C_1$-

$C_5$, $C_1$-$C_5$ dialkylamine and substitutions in substituted compounds are halogen, $C_1$-$C_5$ alkyl and $C_1$-$C_5$ alkoxy;

$R^1$ is C=O;

$R^2$ is $C_1$-$C_{10}$ alkyl including branched alkyls;

$R^3$ is hydrogen, amine, $C_1$-$C_5$ alkylamine, $C_1$-$C_5$, $C_1$-$C_5$ dialkylamine;

$R^2 + R^3$ can form a cyclic alkyl, a $C_1$-$C_{10}$ alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a $C_1$-$C_{10}$ alkyl substituted cyclic aliphatic amine, a heterocycle, a $C_1$-$C_{10}$ alkyl substituted heterocycle including a $C_1$-$C_{10}$ alkyl N-substituted heterocycle;

$R^4$ is Ar, $R^2$ or $C_1$-$C_5$ alkoxy, a cyclic alkyl, a $C_1$-$C_{10}$ alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a $C_1$-$C_{10}$ alkyl substituted cyclic aliphatic amine, a heterocycle, a $C_1$-$C_{10}$ alkyl substituted heterocycle and a $C_1$-$C_{10}$ alkoxy substituted heterocycle including a $C_1$-$C_{10}$ alkyl N-substituted heterocycle;

$R^5$ is C=NH;

$R^6$ is Ar, $R^2$ or $C_1$-$C_5$ alkoxy, a cyclic alkyl, a $C_1$-$C_{10}$ alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a $C_1$-$C_{10}$ alkyl substituted cyclic aliphatic amine, a heterocycle, a $C_1$-$C_{10}$ alkyl substituted heterocycle and a $C_1$-$C_{10}$ alkoxy substituted heterocycle including a $C_1$-$C_{10}$ alkyl N-substituted heterocycle; and,

$R^7$ is Ar, $R^2$ or $C_1$-$C_5$ alkoxy, a cyclic alkyl, a $C_1$-$C_{10}$ alkyl substituted cyclic alkyl, a cyclic aliphatic amine, a $C_1$-$C_{10}$ alkyl substituted cyclic aliphatic amine, a heterocycle, a $C_1$-$C_{10}$

alkyl substituted heterocycle and a $C_1$-$C_{10}$ alkoxy substituted heterocycle including a $C_1$-$C_{10}$ alkyl N-substituted heterocycle; and;

wherein said DNA molecule is taken up by cells in said tissue, said DNA sequence is expressed in said cells and an immune response is generated against said antigen.

**149 (New).** The method of claim 148 wherein said polynucleotide function enhancer is a compound having the formula Ar - $R^1$ - O - $R^2$ - $R^3$.

**150 (New).** The method of claim 148 wherein said DNA molecule is a plasmid.

**151 (New).** The method of claim 148 wherein said antigen is an intracellular pathogen antigen.

**152 (New).** The method of claim 148 wherein said antigen is a viral antigen.

**153 (New).** The method of claim 152 wherein said viral antigen is of a virus selected from the group consisting of: human immunodeficiency virus, HIV; human T cell leukemia virus, HTLV; influenza virus; hepatitis A virus; hepatitis B virus; hepatitis C virus; human papilloma virus, HPV; Herpes simplex 1 virus, HSV1; Herpes simplex 2 virus, HSV2; Cytomegalovirus, CMV; Epstein-Barr virus, EBR; rhinovirus; and, coronavirus.

**154 (New).** The method of claim 148 wherein said tissue includes skin and muscle.

**155 (New).** The method of claim 154 wherein said tissue is skin.

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**156 (New).** The method of claim 154 wherein said tissue is muscle.

**157 (New).** The method of claim 156 wherein said tissue is skeletal muscle.

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## REMARKS

### Status of the Claims

Claims 58, 59, 63, 64, 67-72, 75, 76, 84-86, 94-96, and 115-147 are in the application. By way of this amendment, new claims 148-157 are added. Upon entry of the amendment, claims 58, 59, 63, 64, 67-72, 75, 76, 84-86, 94-96, and 115-157 will be pending.

### Summary of the Amendment

New claims 122-147 have been added to specifically define several embodiments of the invention; in particular as related to methods of inducing antibody generation against an antigen. Support for the new claims can be found throughout the specification. No new matter has been added.